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ORIGINAL ARTICLES.

THE USE OF ELECTRICITY IN THE TREATMENT OF DISEASES OF THE FEMALE PELVIC ORGANS.

*Read before the Medical Society of the District of Columbia,
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Electricity is not unlike all other things in medicine, as regards its invariable tendency to do good even when applied under the most favorable conditions and in the most careful manner. Yet, a great deal of good can be done with it when it is wisely used. It has, I think, been used in medicine about sixty-five or seventy years, and during that period nearly all diseases have been subjected more or less to its influence—usually without any regard to system and frequently without any evidence of reason. This is probably due to the lack of knowledge as to its method of influencing living tissues. During the last few years it has received more attention from scientific men, and its effect upon the human system has been quite thoroughly investigated. The conditions in which it is likely to prove valuable as a means of treatment, have, to a great extent, been classified. For about three years it has been carefully studied in relation with female pelvic troubles, such as fibroid tumors, inflammatory deposits of long-standing, subinvolution and ovarian neuralgia.

The treatment of extra-uterine pregnancy in its first few months has probably become the greatest field for it, inasmuch as many so-called cases have, in this country, been reported cured by it, and the majority of prominent gynecologists of this country prefer its application to the use of the knife during the first five or six months of this condition. No uniform rules are followed in its application to erratic gestation, some preferring the faradic current, but most advocating the galvanic—claiming it is less liable to produce rupture of the gestation sac. But few of these cases have, I think, been positively diagnosed, and I believe in but two or three cases in which electricity has been used for this unfortunate condition, have the products of conception

actually been seen. I saw one of these, and assisted in removing, per vaginam, a five months' fetus from Douglas' cul-de-sac. The reporter of the case claimed to have diagnosed the condition during the thirteenth week, and began applying the galvanic current. This was continued about three weeks, and the extra-uterine growth continued to increase in size after the use of the galvanic current was discontinued. It is interesting to know that electricity was passed through the pelvic organs two or three times during the month, just after the last menstrual period. I can hardly attribute the death of this fetus after the end of the fifth month to the use of the galvanic current between the twelfth and the fifteenth week.

Great claims are being presented for the efficacy of the galvanic current in dispersing fibroid tumors of the uterus. Particularly is it advocated in this class of cases by Apostoli, Keith, Newman, Freeman, Engelmann and Cutter. Its value in this direction is, I believe, overrated.

In two cases that I had diagnosed uterine fibroids, the growths disappeared after several applications of the electric current. One of these was, as I thought, a fibroid of about one and one-half inches in diameter, situated in the posterior wall of the uterus. The woman's general health was bad, but rapidly improved while using a mild galvanic current twelve times in four weeks. At the expiration of the time mentioned, the uterus had become perfectly normal. My diagnosis was made the first time I saw her, and three subsequent examinations did not lead me to doubt the correctness of it.

The other case was multiple fibroids of the uterus and very troublesome. In this case I used the faradic current to relieve pelvic symptoms. These tumors also disappeared. I believe, however, the electric current was not the real factor in their removal, inasmuch as such growths frequently disappear without any treatment whatever. The other case, I now believe, to have been incorrectly diagnosed, that no tumor existed, and that something else was the enlargement I felt—possibly a hypertrophic thickening of the posterior wall of the uterus. My reason for thinking I erred in the diagnosis is that I

have treated with galvanism quite a number of patients suffering with uterine fibroids of various sizes, shapes, locations, etc., the treatment in most of them being diligently pursued for some months, and in none of them, except the above mentioned, did I notice any diminution in the size of the growth during the treatment. One of the two cases cited was one of the first subjected to this kind of treatment, and I was then too enthusiastic in the work to pause for impartial reasoning or to think I might be wrong.

At any rate, I cannot see what reason the advocates of "electrolysis of fibroids" have for so terming the electric action they describe. Certainly no breaking up of the chemical constituents of the growths occur, except, perhaps, some simple salt like sodium chloride is decomposed. But the albumenoids and other complex proximate principles are not broken up, consequently electrolysis does not occur.

Even if it does take place at the poles chemical change does not extend any appreciable distance into the growth. In hard fibroids of from nine to twelve inches in diameter, I cannot conceive how any electrolytic action can take place throughout the tumor, without irreparable damage to the delicate adjacent tissues. How can a current so powerful be confined to the growth when the surrounding more delicate tissue has so much greater conductivity.

The galvanic current has been used considerably in the treatment of inflammatory deposits about the uterus, punctures having been made and powerful currents used as in the treatment of fibroids. I believe mild currents, if applied oftener and longer, both in duration of application and period of treatment, will prove more serviceable. This has been the plan of treatment of the cases related in this paper.

The profession, in general, has not shown much ambition in the treatment of acute inflammations with electricity. I have frequently used it in decidedly acute inflammations, and even in the first stage with most excellent effect. I was pleased by a short article on that subject by Dr. E. H. Grandin, of New York, that appeared in an August number of the *Medical Record*, (Vide vol. xxxiv, 204, 1888.) My limited experience is in accord with that of Dr. Grandin. I think the electric current, either the galvanic or the faradic may many times be wisely substituted for the knife in diseases of the ovaries and oviducts. Mr. Lawson Tait, basing his opinion upon a few cases that came to him for operation after having been treated by electricity (no description of this treatment being offered), denounces strongly, the application of electricity for such cases, (Vide *Medical Record*, N. Y., 1888, xxxiv, 553.) I do not believe that had Mr. Tait given electricity a fair trial in his own practice he would have yet reported his second thousand of consecutive ab-

dominal sections. He has become so expert in abdominal surgery that I doubt his allowing this form of treatment to be superceded by any other, without great reluctance.

I have had a few cases in which the action of the continued galvanic as well as the faradic current has been positively intolerable. The history of one of them appears in this paper (case No. 8).

Certainly case No. 7 was far more nervous than this patient, yet the effect was so decidedly opposite to the result in No. 8.

There is a class of cases that cannot tolerate the application of electricity—not even the amount of electro-motive force just sufficient to overcome the resistance of the tissues through which it passes. I am unable to see anything about these patients that could, in any respect account for the intolerance of the current. It is probably an idiosyncrasy that will only be known after attempts to apply the current have been made. The batteries I have used were made by Waite & Bartlett, of New York, and have been faithfully cared for. I have usually applied the galvanic current just strong enough to be not uncomfortable to the patient. Each séance usually lasted from fifteen to thirty minutes, and usually repeated on alternate days, but occasionally, applications were made every day. The treatment was usually supplemented by tamponnement with small woolen pledgets that were left *in situ* until just before the patient was to return for another treatment. The galvanic current was used in every case, and occasionally the faradic current was employed for its tonic effect, and for the relief of pain. It was usually successful in both of these, and its salutary effect upon constipation was occasionally noticed. I append the histories of a few cases, mostly chronic, pelvic inflammations showing the effect of the mild, galvanic current.

Case 1.—Mrs. W., æt. 31 years; widow; has three children, the youngest being 3 years old. Last confinement severe—finally delivered instrumentally. Has been an invalid since that event, cannot walk one block; suffers very much with pain in "bottom of stomach"—constant fear her "insides" will fall out; constipated; has continuous discharge from bowels. Menses regular and profuse; appetite poor; general condition bad. I first saw her when she came to my office in a carriage, July 29, last.

An examination revealed perineum torn almost into bowel, and a glairy discharge from rectum. The uterus was very low, considerably enlarged, and firmly retained in a retroverted position by the dense and thick adhesions from a former cellulitis. The cervix uteri was deeply lacerated bilaterally. I applied the galvanic current for twenty minutes, placing the positive pole against the roof of the vagina and the negative on the abdominal wall just a little above the symphysis

pubis, and applied a few woolen pledgets against the retroverted fundus uteri for gradual pressure. I also gave her the following: *R. Tr. nucis. vomice, tr. belladon. aa ʒss. m. et. sig. 15 drops t.i.d. in water.* This treatment was continued quite regularly three times a week, until October 9, when the pelvic deposit having been entirely absorbed, the uterus in good position, and the patient's general condition much improved, I operated for the perineal and cervical tears. The union was complete in both localities, and three weeks later, she resumed her household duties. November 25, I examined this patient, and found the pelvic organs in a perfectly healthy condition. A Simpson sound passed into uterus three inches. She said she had gained thirty pounds in weight since August 1, last, notwithstanding the two operations she underwent in the meantime.

Case 2.—Mrs. H., white, æt. 32 years; came to me September 31, last, and gave the following history: At the age of 20 years she married and had two children, both of which are now living. Her husband died six years later. During one of her confinements the cervix uteri was torn, and she had womb trouble following it. During her widowhood she was operated upon for the laceration, and was married again about two years ago. She felt well until last spring, when she had an abortion produced, and was in bed about three weeks following it. The doctor told her she nearly died from fever. Has not felt well since, is thin, delicate and nervous; suffers with profuse menstrual flow every three weeks, and constant bearing-down pain with headache. After walking a short distance she is obliged to lie down. An examination revealed the uterus retroverted and bound down by a firm pelvic exudate on every side. The sound passed three inches, the cervix tender, considerable catarrhal discharge was seen oozing from its canal. Applied a solution of silver nitrate (20 grains to ʒj) to cervical canal and dry wool tamponade to posterior fornix vaginae. Two days later she returned, and I began a course of treatment by the galvanic current, as in case 1, extending the séance to thirty minutes and applying the wool as before. October 16, made the seventh application.

I succeeded in replacing the uterus, which has no tenderness nor catarrhal discharge. Patient states she has gained six pounds since her first visit, and feels comparatively good. November 4 to 6, menstruated—no pain and normal quantity. Treatment continued until November 16, when it was discontinued. The uterus was then in normal position, sound passed two and three-fourth inches, and no pelvic adhesions can be found. She feels perfectly well.

Case 3.—Mrs. H., white, æt. 34 years; married. I was called to see her June 28, last, and found her

suffering with a large pelvic abscess to the left of and behind the uterus, reaching up into left inguinal region. She had been married twelve years and had three children. Since the birth of the last child, she has had three abortions. Since her last confinement, six years ago, she has suffered with womb trouble; menstruation occurred in latter April, but she did not think she was pregnant again, as no symptom as in former pregnancies was present, except nervousness. She was taken with severe pelvic pains with hæmorrhage from the uterus on the 17th of June. This began without warning a short time after coming in from a drive behind a fractious horse that afternoon. The pains continued until near morning, when her doctor said she passed something that she now thinks was the result of another abortion. She had fever a few days later and great swelling and pain in lower abdomen. She suffered so much with pain, that her doctor gave her suppositories of morphia and belladonna, but the fever had never gone away. On my first visit I found her in bed, with a feeble pulse, some fever and a hectic flush to cheeks; an eruption all over the body, that she stated had appeared during the past week. I attributed it to the use of belladonna, and it shortly disappeared after I stopped the suppositories. The uterus was found enlarged, immovable, and very tender. It was pushed forward and to the right by a large abscess that was quite prominent in left inguinal region; fluctuation was distinct through Douglas' pouch as well as through abdominal wall. Considerable sanious discharge from uterus was present. The same day I opened the abscess through the abdominal wall and let out about a quart of yellow pus. A grooved director was then pushed through the vaginal roof in the median line, behind the cervix uteri against my right index finger, in the bottom of the abscess cavity. Through the new opening I forced my left index finger. The cavity was then flushed with about a gallon of hot solution of corrosive sublimate, 1 to 1,000. A long rubber drainage tube was passed through the abdominal opening and pulled out through vagina. The solution of mercuric chloride was used for cleansing the wound. Patient rapidly improved, and the abscess was healed by the 10th of August. August 27, she came to my office. Had just had a troublesome and profuse menstrual period and felt weak, complained of little jars received in riding on street car. The uterus was found still immovable, somewhat enlarged, very hard and settled back to a position about normal. The whole pelvic organs seemed to be in a mass as if set in plaster of Paris. I began using a mild galvanic current, the positive pole applied to vaginal roof performing the work. The current was used twenty minutes, and this frequently followed by the negative pole of the faradic current along the spine

for five minutes. She was also given the following prescription :

R. Hydrarg. bichlor. gr. jss.
Tr. ferri chlor. ʒv.
Syr. zingiber. ʒj.
Aque ad ʒiv.
℞. et. sig. Teaspoonful in water after meals.

This treatment was continued until October 26, at which time she was obliged to return to her home in Pennsylvania. The galvanic current had been applied about three times a week. At her last visit she stated she had just passed her menstrual period, and with very little inconvenience. A careful examination was made at this time. Her general condition was much better and she complained very little. The uterus was fairly movable, although no smaller, but the pelvic exudate was lessened in amount and softened.

Case 4.—Mrs. S. M., a widow, 44 years old, first came to me June 15 last. She had had three children, the last of which was born fourteen years ago. This labor was severe; she was delivered by forceps and torn. She had child-bed fever and made a bad getting up. She has suffered ever since with profuse menstruation every three weeks, sometimes oftener, and a sensation of weight in her stomach. Large clots were passed every time she was unwell, and the prostration incident to each attack would hardly be overcome in the interval following it. She has been treated by three or four physicians, all of whom told her her trouble was fibroid tumors of the uterus and treated her with ergot and other remedies. Her last physician, after a course of treatment extending over six months, told her relief would come only with the change of life. Her appetite was poor and the feeling of weight pronounced. I found the perineum torn down to sphincter ani muscle, the vaginal walls flabby, and the uterus symmetrically enlarged to about twice its natural size, a little lower than it should be and fixed. The cervix was bilaterally lacerated almost to the cervico-vaginal junction and the vaginal roof thickened and very dense. I could not find a fibroid tumor, and so informed her. I applied the galvanic current as in the other cases, with the occasional application of the positive pole to the interior of the uterus a few days before the expected flow. Dry woolen pledgets were also placed against roof of vagina, sufficiently large to cause slight upward pressure. I noticed the intra-uterine electrode passed the first time $4\frac{1}{2}$ inches. She improved considerably, the hæmorrhages lessened in amount and frequency. Early in August the intra-uterine electrode would pass but $3\frac{1}{2}$ inches. The flow did not appear in September until near the natural time, and in October it was quite four weeks later, lasting but three days and containing no clots. It did not appear at all in November—no premonition of it even appearing.

November 3. The uterus is movable to a considerable degree, and is smaller, its cavity measuring but 3 inches. There is yet some thickening of the vaginal roof.

Case 5.—Miss C., æt. 32 years, white, first came under my care July 12 last, when she came to my office, accompanied by her mother. Her history is as follows:

Began menstruating at 12 years, has never missed a period, nor been free from pain at that time. Has become very severe during the past two years, requiring her to take $\frac{1}{2}$ gr. morphia suppositories, and to remain in bed the day preceding the beginning of the flow, and during the first two days of it. The last period was the worst of her life and she dreads the next—three weeks off.

During the intermenstrual periods she has a dull, heavy pain in lower part of abdomen, most marked on the left side. Her appetite is poor and she is troubled with constipation. Has been treated in Richmond and Philadelphia. She and her mother feared the ovaries would have to be removed, as that had been advised in Richmond, and in Philadelphia they were told nothing else would cure her. She readily consented to an examination, which revealed a small, retroflexed uterus and enlarged and unusually tender ovaries which could be fairly well outlined by the bimanual method of examination, the patient lying in the lithotomy position. They were low but movable. I began to use the galvanic current that day, applying it every day thirty minutes. The current was very comfortable to the patient. After it was stopped I applied a small pledget of wool against the fundus uteri and allowed it to remain there until just before her return the next day. Once I had to give her a mild laxative. This treatment was continued until she came August 4. She preferred no treatment that day, as she felt she was going to be unwell soon. She was suffering from pain through the pelvis. She consented, however, to be treated, and I applied the positive pole of a mild faradic current to the uterine cavity for about ten minutes—the negative pole being placed over hypogastrium. She began menstruating during the following night and had very little pain, but remained in bed for two days. The flow lasted four days.

August 11. Patient returned and treatment resumed. An examination at this time showed the ovaries to be less tender and their position a little higher. I pursued the treatment of this patient diligently, hoping to render oöphorectomy unnecessary.

The next menstrual period was passed with but slight uneasiness and she did not remain in bed. After this period the ovaries could not be felt with the patient lying on her back. I continued the galvanic current for three weeks—applying it on alternate days after the last menstrual epoch. At this time, September 28, she went to her home in

Virginia. At her last visit to me I carefully examined her pelvic organs. The uterus I found in a better position than at first and, I think, a little larger. The whole pelvic viscera had lost its unusual tenderness. She stated she had gained in weight 6 lbs. I have not heard from her since she left the city, but think she would return if she was not feeling well.

Case 6.—K. S., æt. 24, white, single, came to me June 15 last, suffering with almost constant pain in lower abdomen, that gets worse after walking even a short distance. Menses profuse and painful, occurring irregularly, although about every three weeks. She cannot go up and down stairs without considerable pain, and that interferes materially with the proper performance of her duties as housekeeper in a large boarding-house. She confessed having had an abortion performed in June, 1886, after having missed two menstrual periods, and did not get along well afterward, although she did not consult a physician. An examination revealed a dense vaginal roof, holding quite firmly an enlarged, congested and tender uterus; considerable catarrhal discharge was oozing from the eroded cervical canal. A solution of alum in glycerine was applied to the canal and the galvanic current was passed through the inflammatory deposit. A small pledget of dry wool containing some powdered borax was laid against the external os uteri. The discharge from the canal ceased about the middle of July. The galvanic current was applied thirty-six times, the last application being made October 12, when the uterus was movable, reduced in size to about normal, and the cellular tissue about it showed no abnormal deposit. She was feeling very well and had passed the last two menstrual periods four weeks apart, without pain or undue quantity of flow. She was working every day.

Case 7.—Mrs. B., white, æt. 22 years; she is a tall, thin blonde and has been married six months. She came under my care October 4 last. She had generally had a great deal of pain at the menstrual period, but it has been worse since the date of her marriage. The first menstrual epoch after her marriage was two weeks late, and then appeared only after her taking medicine upon the supposition that she was pregnant. She did not desire children and believes she prevented it in this instance. She was confined to bed afterwards with pain so severe that, as she says, she had to take large doses of paregoric to live. She has felt badly ever since, suffering with extreme tenderness in lower abdomen and pain in back. Her last menstrual period ceased one week ago.

At her first visit she appeared weak, pale and nervous. The conjunctivæ were pale, and she walked slowly and carefully with a slight limping on the left side. She complained of frequent and painful micturition, loss of appetite with frequent nausea, constipation and night sweats.

She thought she had malaria, as she was having a chill every day.

October 5 I examined her and found the vagina short and its walls deeply congested and tender. The uterus, retroflexed and retroverted, was quite firmly held in that position by a thick cellulitic deposit to the left and behind it. The eroded cervix uteri was covered by a thick muco-purulent discharge. Applied the galvanic current three times a week. October 10, she felt much better. I added faradization of the spinal cord as a tonic.

This treatment continued until October 31, when patient stated she felt real well and had gained 6 lbs. She has no trouble with stomach, bowels or bladder. The uterus is movable but enlarged, very little inflammatory thickening to roof now felt. Uterus easily pushed forward but no discharge from cervical canal; appetite good, no nausea.

The positive pole was applied after this, each time, to the interior of the uterus until the 12th of November. On the 20th she returned to state that she felt perfectly well, and had menstruated four days since her last visit; did not feel uncomfortable during it and is now doing her own housework. She has no limping and has no trouble from walking. I found the uterus slightly retroflexed and its cavity of normal length.

Case 8.—Mrs. S., white, æt. 37 years; has had seven children followed by an induced abortion at two months two years ago. She was very ill after that and has never recovered from it. She is almost an invalid, having constant dull pains through pelvis that become lancinating after much exertion, requiring her to remain in bed. Menses profuse, and agonizing, lasting from five to ten days; complaints of neuralgic headaches, loss of appetite, constipation, and cutting pains when voiding urine. An examination revealed the uterus to be large, hard, and in normal position, but surrounded by a thickened vaginal roof. Any movement of uterus causes considerable pain and prostration. The galvanic current was applied as in the other cases and the nervousness following it was marked—so much so that the application was not extended beyond ten minutes. This occurred July 19 last; after she had rested about one-half hour, small pledgets of wool were applied against vaginal roof around the cervix. She did not return until August 1, at which time she claimed to feel better and that her bowels had been regular without medicines since her last visit. She was anxious to have the electric current re-applied, as some friend had had a "modern miracle" performed on her in New York by means of this agent. I did not like to repeat the experiment of two weeks ago, but as the patient was anxious to have it tried again I repeated it. This time the application was barely perceptible to patient, yet I had to discontinue it after about six

minutes on account of faintness and loss of motion in the lower extremities; her face was very pale and the pulse alarmingly weak. My faradic battery was convenient, and I applied the interrupted current along the spine for a few minutes. It was about an hour before she could walk. I treated this patient until the 2d of October, but did not again employ galvanism on her.

Case 9.—Mrs. A., 42 years old, consulted me July 2 last, regarding some pelvic trouble. She had had two children and a miscarriage at three months three years ago. Her trouble dated from the miscarriage. She suffers with pain in back and bearing down, poor appetite and nervousness. Menses profuse but regular, requiring her to remain in bed four of the six days every month. Has been under the care of a few specialists for a year. I found the vagina large and its walls relaxed—uterus enlarged, low and retroverted. It was almost immovable, very tender to touch, and seems to be imbedded into the thickened vaginal roof.

Galvanism three times a week for thirty minutes, each application being followed by a gradual pressure against the lower side of the fundus uteri by woolen tamponades. She expressed relief just after the first treatment. This method of treatment was pursued until the 9th of October, when the condition seemed normal. I made twenty-six applications of the galvanic current to this patient during the course of treatment.

I do not think much improvement occurred in case 3 during treatment by galvanism. She felt very well, but this was, I think, not due to improvement in the condition of the pelvic organs. Many women suffer a great deal from conditions about the same as this woman has, and I think she will sooner or later have a recurrence of pelvic pain and sensitiveness.

The result in case 5 was very pleasing to me, as I am very glad to save a woman her organs of reproduction whenever it is possible to do so.

If electricity is of much value in this class of cases, I think it has a great field in the future, and should be thoroughly tried before the ovaries and tubes are subjected to the knife.

I do not think much good will come from the use of electricity in large pelvic abscesses or in tumors of a cystic or malignant nature. But I think nearly all other diseases of the female pelvic viscera are amenable to its restorative influence. Even small abscesses and small cysts of these structures are, I believe, curable by the judicious application of this remedy. In many of the cases that have been reported as cures of ectopic gestation by electricity, the condition of the patient's pelvic organs previous to the discovery of the so-called pregnancy had not been known. The diagnosis in them was faulty, but the treatment perfectly satisfactory. It is not unfair to

assume that some of these cysts were not pregnant cysts, but arose in some other manner. Certainly no failure, even in quite inexperienced hands, of the electric current in such cases has ever, to my knowledge, been published.

1314 I St.

DR. J. W. BOVEE read a paper on

THE USE OF ELECTRICITY IN THE TREATMENT OF
DISEASES OF THE FEMALE PELVIC ORGANS.

(See p. 505.)

DR. J. R. BROMWELL said he had listened with much interest to the paper and report just read. As there was so much yet to learn regarding the application of electricity in the treatment of diseases peculiar to women, he asked pardon for any criticism he might make in the discussion. In making use of such indefinite terms as "galvanic or faradic current," and failing to measure, by accurate doses, the electricity used in the treatment of his cases, Dr. Bovee's paper was incomplete, and lacking in practical value as a guide to us in the treatment of similar cases hereafter. Positive and definite dosage is as necessary in the electrical treatment of disease as it is in any other method, and unless the intensity of the galvanic current used is accurately measured, by having a reliable milliamperemeter in the circuit, the treatment is uncertain, haphazard and empirical. It may be negative in its results, owing to no current passing, or it may be positively harmful from the unknown strength of the current. He had known patients treated for weeks by a most skilful physician, with one of the most improved batteries, before milliamperemeters were in general use, who thought he was giving his patient the full benefit of electrical treatment, but, upon placing a reliable milliamperemeter in the circuit, found, much to his astonishment, that it failed to register more than 3 or 4 milliamperes, with a minimum resistance. His battery had run down. With the battery in such condition, had he been guided by the number of cells which the patient could bear with comfort, or freedom from severe pain, as to the strength of current to be used in future treatment, and in his next case used a battery more recently charged, incalculable harm might have been the result, three or four cells of a recently charged acid battery giving as strong a current

as a dozen of one almost exhausted. There are few, if any, perfectly constant batteries in the market, all varying more or less, owing to the use to which the battery has been put since charged. There are other reasons, fully as weighty, why something more reliable than the number of cells used is necessary. The resistance offered by the tissues to the passage of the current is never the same in any two patients. The resistance offered by the electrodes varies also. The action of the poles, which are widely different one from the other, the size, shape, and material of the electrodes, as well as where and how they are placed, are subjects worthy of the most careful consideration and study, and should be noted in the record and report of all cases treated by electricity. Any haphazard use of the poles is unscientific, lacking in practical value, and unquestionably harmful, not to mention the perplexity to the operator when improperly used. Englemann, Apostoli and others have laid down such clear and positive rules for the guidance of the gynecologist in the use of electricity, that it would be inexcusable to occupy time by repeating them here.

The enthusiasm of a year ago, when batteries were selling here by the hundred, has calmed down, and electricity is settling down to a more reliable basis as a remedial or curative agent in the hands of the gynecologist. And if we hope for anything of practical value from it, or to place it upon an equal footing with other methods of treatment, or to formulate rules for our guidance in treating other cases, or to arrive at positive scientific conclusions regarding its value, we must work with it scientifically and not empirically, to fool ourselves and tickle the fancy of patients, who may be awed by the display of elaborate and costly apparatus into believing that something wonderful is being done.

Whilst not a cure-all, electricity has its proper place, and that an important one, in the treatment of diseases of women. Fibroids will diminish under proper electrical treatment, and thereby in some, if not all cases, do away with the necessity for the use of the knife. Some of their most dangerous symptoms are relieved by electricity; for instance, the troublesome hæmorrhage so often accompanying them. Frequently repeated applications, extending over months or years, are now abandoned for fewer applications, but higher intensities, 150 to 200 milliampères, by electropuncture into the body of the tumor. The action of electricity upon neoplasms continues for some time after the treatment, consequently there is no need for very frequent applications, when properly applied. One year ago he was very enthusiastic over the results of the electrical treatment of cervical stenosis, but was sorry to say he had changed his mind, owing to all his cases returning to their original condition five or six months after stopping treatment.

To remove indurations and extravasations resulting from pelvic inflammation; to relieve ovarian pain, or, as Engelmann says, engorgement, and accompanying pain; as an auxiliary in treating uterine displacements; to relieve some forms of constipation; and in the treatment of hysteroneurosis, electricity had given him good results.

The proper treatment for laceration of the cervix uteri is an operation. He thought, in regard to Dr. Bovee's first or second case, that all the good results secured were obtained by the operation, and not by the electrical treatment. Only a short time ago he operated upon a woman whose health was a perfect wreck, due to a badly lacerated cervix and its accompanying hyperplasia. She is now in perfect health, with no other treatment. There are idiosyncrasies forbidding the use of electricity which cannot be determined beforehand. He had seen a current no stronger than 3 or 4 milliampères, the negative electrode in the uterus, the positive, a dispersing electrode 4 x 6 inches, cotton covered, on the abdomen, cause nausea, vertigo, and an inability to walk or stand for some time afterwards. When this condition exists, the only thing to be done is to abandon electricity in that case.

Dr. Jos. TABER JOHNSON said he had not intended to speak upon this subject, as he was not yet quite sure what value to place upon electricity in gynecological cases, but would say a few words upon some of the points raised in the very interesting paper of Dr. Bovee. He would endorse all that Dr. Bromwell had so well said in his opening remarks in regard to exact dosage. To say that a patient had simply been treated by electricity was not enough in this day, when so much is known of the value and effect of the various kinds of currents, their strength, quality, quantity, intensity, length of séance, etc.

The treatment of extra-uterine pregnancy was a very large and important subject. It was one of the live and vexed questions now agitating the profession. There existed quite a difference of opinion in minds of equally good men as to the final value of electrolysis in these cases. It was claimed by some that in many of the instances reported as cures by this agent ectopic gestation had never been proven to exist; and abdominal surgeons were slowly coming to the conclusion that in the long run women stood a better chance of ultimate recovery to have their abdomens opened and the entire mass thoroughly and properly removed, than to run the gauntlet of many dangers from the presence of a dead foetus in their bellies for many months, and perhaps for years. In a recent discussion on this subject before the American Gynecological Society Dr. Johnstone, of Kentucky, had compared the foetus and its membranes or placenta killed by electricity to a dynamite cartridge ready to explode on provocation, and to finally destroy the patient by the

slow and exhausting process of ulceration and inflammation, or by the more rapid process of septicæmia.

The case mentioned by Dr. Bovee in his paper was a good illustration for both sides of this question. A distinguished gynecologist had reported it as a success for electrolysis. He thought he had killed the fetus before the completion of the third month, and had thus saved his patient, but the subsequent history of the lady showed that she had been a terrible sufferer. She had septiciæmia for weeks, and finally the bones of a five months' fetus were with difficulty extracted through the vaginal roof, and very offensive discharges were escaping for a long time. If this patient had been operated on as soon as the diagnosis was made out she would probably have been cured in much less time, and would have suffered much less, and been in much less danger. While he had never operated on a case of this kind and was therefore not in a position to give advice, still he felt quite sure that, in this age, if he were certain of his diagnosis he would operate—if not certain he would resort to electricity, and he thought that was the position the profession would soon come to occupy.

The treatment of uterine fibroids by electricity was also a large subject. Its proper use demanded much knowledge of the subject, and skill in the manipulation of powerful batteries. It was claimed by Engelmann, Cutter, and Martin, in this country, and Apostoli, Keith, and others, in Europe that a few applications of strong currents was all that were required.

A deep puncture of a large fibroid with a properly insulated, sharp-pointed electrode—with a very large dispersing abdominal electrode—and a current of 200 or 250 milliampères, was recommended. Its repetition was not considered safe oftener than once in a week or ten days, and from six to ten, or even a less number of applications was thought to be sufficient. In these operations accidents have occurred. Indeed one abdominal surgeon stated sometime ago that he had heard of more deaths from the use of electro-puncture than had occurred to him in the performance of pre-vaginal hysterectomy during the year. Many of the cases reported as having been treated by electrolysis he felt sure, from the meagre reports, had not had all the advantage which might follow the use of the skilled and scientific application of this valuable remedy, though, as stated, months had been devoted to it and several hundred applications had been made.

Then again, there are cases we are not yet able to determine beforehand, which not only fail to be benefited by electricity but, as Van de Warker has recently pointed out, are actually made worse by it. The tumors are irritated by the repeated shocks, and either grow more rapidly or degenerate into fibro-cystic tumors. As it is uncertain

what tumors would be benefited by electricity he would recommend its use in all fibroids requiring any treatment, and not resort to surgical interference until a reasonable trial had demonstrated its failure.

Very few uterine fibroids of any size had yet been caused to disappear under its influence. The most that enthusiasts claim for it, is that some of their patients have been symptomatically cured. This is a great gain of course, but it cannot be yet successfully shown that the removal of these tumors will not be occasionally demanded in order to save life—or to make life at all endurable.

The author of the paper gave a number of cases of pelvic diseases in women which he thought had been cured by electricity, and yet in nearly all of the cases detailed many other remedies were used conjointly, and in some cervical and perineal lacerations were successfully operated on, so that we are left in doubt as to which remedy we should ascribe the cure. We all share in the hope expressed by the Doctor that electricity may drive the surgeon out of the female pelvis, and that ovaries and tubes heretofore sacrificed to his knife may hereafter be saved by this subtle and mysterious agent, but at present the distinction must be drawn between masses in the pelvis which are the products of inflammation, and collections of pus. Electricity may relieve the former and should be faithfully tried. It may relieve the pain and symptomatically cure the patient, and in many cases greatly benefit and entirely cure them by causing the complete absorption and disappearance of the pelvic mass, but in severe or long-continued chronic cases of pelvic abscess or pyo-salpinx, he thought it was trifling in the face of grave dangers to risk their rupture by resorting to a useless and perhaps harmful treatment. After a surgeon had become sure of his diagnosis in these cases, as in cases of ectopic gestation, he thought the knife much safer and better practice. The great need of the times was a more perfect mode of diagnosis. He did not see why an error in diagnosis was any more culpable in pelvic than in abdominal or thoracic disease, but yet it was so regarded by many.